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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/743,125	04/23/2001	Horst Sulzbach	H-3467PCT/US	5309

23657 7590 12/14/2001

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EXAMINER

SELLERS, ROBERT E

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 12/14/2001

8

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/743,125

Applicant(s)

SULZBACH ET AL.

Examiner

Robert Sellers

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent No. 435,497 and Scherr et al.

The European patent (pages 6-7, Examples 1-5) shows adducts of dimethyl or diethyl maleate and a diaminopolyalkylene oxide (tetraethylene glycol diamine) in diamine:dialkyl maleate molar ratios of 3:1 reacted with an epoxy resin in an epoxy:active amino hydrogens equivalent ratio of as much as 2:1 which yields an epoxy-functional product.

Although the reaction of the diaminopolyalkylene oxide:dialkyl maleate adduct with the epoxy resin of the European patent forms a cured product, the epoxy:active amino hydrogens equivalent ratio of 2:1 indicates the presence of unreacted epoxy groups. Accordingly, the cured product of the reference is within the realm of the claimed epoxy resin.

There is no affirmative dispersion step of the claimed epoxy resin into water to distinguish over the prior art reaction product. Even if such a process step were inserted, it is a matter of ordinary skill in the art to acknowledge the water-dispersibility of the reaction product of the European patent based on the teachings of Scherr et al. wherein the water solubility of an equivalent reaction product is recognized.

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Scherr et al. espouses a water-soluble condensation product obtained from the reaction of a polyetheramine or polyetherpolyamine (col. 3, lines 12-30) and methyl or ethyl acrylate (col. 4, line 17) to the extent that from 20-99% of the primary amino groups survive (col. 6, lines 6-9) followed by reacting (col. 2, lines 16-20 and col. 5, lines 56-58) with a diglycidyl ether of a polyalkylene glycol (col. 5, line 1) in a maximum particular ratio of diglycidyl ether:polyetheramine of 20:1 (col. 6, lines 9-11; converted from the minimum particular diglycidyl ether:polyetheramine ratio of 1:0.05).

The claims encompass the water soluble condensation product of Scherr et al. which contains unreacted epoxy groups when the polyetheramine:methyl or ethyl acrylate adduct is reacted with the polyalkylene glycol diglycidyl ether in a ratio of 20:1 in particular.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Becker et al. discloses an aqueous dispersion (col. 3, lines 15-16) containing an epoxy groups-containing hardener which is the reaction product of an **epoxy-functional adduct** derived from 2-4 equivalents of a *polyepoxide* and from 0.2-1.5 equivalents of a *polyalkylene polyether polyol* (col. 3, lines 25-28), and a **pre-reacted product** (col. 3, lines 46-49 and 64 to col. 4, line 3) of a *polyoxypropylene polyamine* (col. 6, line 66) and an unsaturated compound such as *methyl acrylate* or *ethyl acrylate* (col. 3, lines 51-59 wherein R₁ and R₂ in the formula are each hydrogen and X is methoxycarbonyl or ethoxycarbonyl, respectively) in an equivalent ratio of

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active hydrogen atoms:C=C of from 3.3:1 to 10:1 (converted from the preferred C=C:amine equivalent ratio of from 0.1:1 to 0.3:1).


Claimed step (ii) wherein the polyepoxide is reacted with the unsaturated carboxylic acid ester/aminopolyalkylene oxide reaction product in an oxirane:active hydrogen atoms equivalent ratio of from 100:1 to 1.5:1 to form an epoxy-functional intermediate precludes the reaction of Becker et al. wherein the polyoxypropylene polyamine/methyl or ethyl acrylate reaction product is reacted with the polyepoxide/polyalkylene polyether polyol adduct in a 2 to 10 times excess (col. 3, lines 31-33).

Simonsick et al. and Barnhoorn et al. react unsaturated esters with primary monoamines (Simonsick et al., col. 3, lines 13-18) or an aliphatic (poly)amine (Barnhoorn et al., col. 2, lines 17-24) as opposed to the claimed aminopolyalkylene oxide. Waddill sets forth the reaction of a triaminopolyalkylene oxide with a polyacrylate as opposed to the claimed monounsaturated ester.

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RS

12/7/01



ROBERT E.L. SELLERS
PRIMARY EXAMINER